TEKS Curriculum Framework for STAAR Alternate 2

Algebra I

STAAR Alternate 2 Mathematics Instructional Terms

The curriculum that will be assessed each year for STAAR Alternate 2 is determined by the essence statements that are selected for each administration. Teachers should refer to the Curriculum Framework documents for each selected essence statement to locate the prerequisite skills that are linked to that essence statement. Instruction should focus on the listed prerequisite skills. The teacher should determine what skills have been mastered and which need to be taught according to the developmental level of the student. The goal should be to assist the student in attaining the highest academic level the student is capable of within a given year. In addition to the prerequisite skills, there are instructional terms that students will need exposure to during instruction. The following list includes the terms for all the essence statements and not just the ones selected for a given administration. Students need to become familiar with these terms as the student is developmentally able to comprehend the content. Students in higher grades need to also know the terms presented in earlier grades.

Grade 3 Mathematics

set /dividing equally	alike/same as/different	length/longer/longest	three-dimensional geometric figures: sphere, cube, cone, rectangular prism, cylinder, pyramid
addition/subtraction models	pattern/extend	order: least to greatest, longest to shortest	
equal/total	number pair		
plus/minus	graph: category, label, row, column	measurement: weight, mass, capacity, area, height	needs/wants as related to budgets
number sentence	chart/picture graph/bar graph		earn money/save/spend
fact family	representation/represents	attributes: vertices, faces, edges	names and values of coins
numeral/odd/even	record/results/data	two-dimensional shape: circle, triangle, rectangle, square, polygon	
next to/after/before/between	fraction: whole, half, separate		

Grade 4 Mathematics

less than/more than	fractions: shaded parts of a whole, halves, fourths	symmetry	rounding
most/least		volume	spending plan

Grade 5 Mathematics

equation	triangles: right, acute, obtuse	parallel/intersecting/ perpendicular lines	coordinate grid
equivalent fractions	congruent		decimal
numerator/denominator	square inch	number line/point on a number line	estimation
attributes of geometric figures: sides			

Grade 6 Mathematics

divide	table of related or paired numbers	area and formula of a rectangle or square: (length, width)	income/saving/spending
number line: whole numbers, halves	pictograph/line graph/point		ratio

Grade 7 Mathematics

multiply	congruence	linear relationships	mean/median/mode/range
attributes of geometric figures: bases	formula for perimeter	conversions	proportional
	percent	radius/diameter/circumference	budget/deposit/withdrawal

Grade 8 Mathematics

line of symmetry	horizontal/vertical	increase/decrease/expenses	probability

Algebra I

grid/unit	square feet	rate/rate of change	expressions
recycled			

STAAR Reporting Category 1 – Functional Relationships: The student will describe functional relationships in a variety of ways.	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	**Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations**
Algebra (1) Foundations for functions. The student understands that a function represents a dependence of one quantity on another and can be described in a variety of ways. The student is expected to (A) describe independent and dependent quantities in functional relationships; Supporting Standard (B) gather and record data and use data sets to determine functional relationships between quantities; Supporting Standard (C) describe functional relationships for given problem situations and write equations or inequalities to answer questions arising from the situations; Supporting Standard (D) represent relationships among quantities using [concrete] models, tables, graphs, diagrams, verbal descriptions, equations, and inequalities; Readiness Standard (E) interpret and make decisions, predictions, and critical judgments from functional relationships. Readiness Standard	Shows a basic understanding of functions.

Algebra 1	**Prerequisite Skills/Links to TEKS Vertical Alignment**
	Relationships - estimate and find solutions to application problems involving percents and other proportional relationships such as similarity and rates - compare and contrast proportional and non-proportional linear relationships - use words and symbols to describe the relationship between the terms in an arithmetic sequence (with a constant rate of change) and their positions in the sequence - estimate and find solutions to application problems involving proportional relationships such as similarity, scaling, unit costs, and related measurement units - estimate and find solutions to application problems involving percent - use ratios to make predictions in proportional situations - represent ratios and percents with concrete models, fractions, and decimals - use ratios to describe proportional situations

Continued

Algebra 1	Prerequisite Skills/Links to TEKS Vertical Alignment

Patterns
- use patterns to multiply by 10 and 100
- use patterns and relationships to develop strategies to remember basic multiplication and division facts (such as the patterns in related multiplication and division number sentences (fact families) such as $9 \times 9 = 81$ and $81 \div 9 = 9$)
- identify patterns in related multiplication and division sentences (fact families) such as $2 \times 3 = 6$, $3 \times 2 = 6$, $6 \div 2 = 3$, $6 \div 3 = 2$
- identify patterns in multiplication facts using concrete objects, pictorial models, or technology
- identify and extend whole-number and geometric patterns to make predictions and solve problems
- identify, describe, and extend repeating and additive patterns to make predictions and solve problems
- identify patterns in a list of related number pairs based on a real-life situation and extend the list
- generate a list of paired numbers based on a real-life situation such as number of tricycles related to number of wheels
- use patterns and relationships to develop strategies to remember basic addition and subtraction facts. Determine patterns in related addition and subtraction number sentences (including fact families) such as $8 + 9 = 17$, $9 + 8 = 17$, $17 - 8 = 9$, and $17 - 9 = 8$
- use patterns in place value to compare and order whole numbers through 999
- find patterns in numbers such as in a 100s chart
- identify patterns in related addition and subtraction sentences (fact families for sums to 18) such as $2 + 3 = 5$, $3 + 2 = 5$, $5 - 2 = 3$, and $5 - 3 = 2$
- use patterns to develop strategies to solve basic addition and basic subtraction problems
- compare and order whole numbers using place value
- find patterns in numbers, including odd and even
- use patterns to skip count by twos, fives, and tens
- identify, describe, and extend concrete and pictorial patterns in order to make predictions and solve problems
- count by ones to 100
- use patterns to predict what comes next, including cause-and-effect relationships
- identify, extend, and create patterns of sounds, physical movement, and concrete objects

Classification and patterns skills
- recognize and create patterns

Graphical Representations
- find and evaluate an algebraic expression to determine any term in an arithmetic sequence (with a constant rate of change)
- predict, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations
- generate a different representation of data given another representation of data (such as a table, graph, equation, or verbal description)
- formulate problem situations when given a simple equation and formulate an equation when given a problem situation
- use concrete and pictorial models to solve equations and use symbols to record the actions

Continued

Algebra 1	Prerequisite Skills/Links to TEKS Vertical Alignment
	• graph data to demonstrate relationships in familiar concepts such as conversions, perimeter, area, circumference, volume, and scaling • generate formulas involving unit conversions within the same system (customary and metric), perimeter, area, circumference, volume, and scaling • formulate equations from problem situations described by linear relationships • use tables of data to generate formulas representing relationships involving perimeter, area, volume of a rectangular prism, etc. • use tables and symbols to represent and describe proportional and other relationships such as those involving conversions, arithmetic sequences (with a constant rate of change), perimeter and area • select from and use diagrams and equations such as $y = 5 + 3$ to represent meaningful problem situations • identify prime and composite numbers using concrete objects, pictorial models, and patterns in factor pairs • describe the relationship between sets of data in graphic organizers such as lists, tables, charts, and diagrams • describe the relationship between two sets of related data such as ordered pairs in a table • identify and describe patterns in a table of related number pairs based on a meaningful problem and extend the table • generate a table of paired numbers based on a real-life situation such as insects and legs

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 2 – Properties and Attributes of Functions: The student will demonstrate an understanding of the properties and attributes of functions.	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	**Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations**
Algebra (2) Foundations for functions. The student uses the properties and attributes of functions. The student is expected to (A) identify and sketch the general forms of linear ($y = x$) and quadratic ($y = x^2$) parent functions; Supporting Standard (B) identify mathematical domains and ranges and determine reasonable domain and range values for given situations, both continuous and discrete; Readiness Standard (C) interpret situations in terms of given graphs or create situations that fit given graphs; Supporting Standard (D) collect and organize data, make and interpret scatterplots (including recognizing positive, negative, or no correlation for data approximating linear situations), and model, predict, and make decisions and critical judgments in problem situations. Readiness Standard	Uses properties and attributes of functions.

Algebra 2	**Prerequisite Skills/Links to TEKS Vertical Alignment**
	Graphical Representations • find and evaluate an algebraic expression to determine any term in an arithmetic sequence (with a constant rate of change) • predict, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations • generate a different representation of data given another representation of data (such as a table, graph, equation, or verbal description) • formulate problem situations when given a simple equation and formulate an equation when given a problem situation • use concrete and pictorial models to solve equations and use symbols to record the actions • graph data to demonstrate relationships in familiar concepts such as conversions, perimeter, area, circumference, volume, and scaling • generate formulas involving unit conversions within the same system (customary and metric), perimeter, area, circumference, volume, and scaling • formulate equations from problem situations described by linear relationships • use tables of data to generate formulas representing relationships involving perimeter, area, volume of a rectangular prism, etc. • use tables and symbols to represent and describe proportional and other relationships such as those involving conversions, arithmetic sequences (with a constant rate of change), perimeter and area

Algebra 2	Prerequisite Skills/Links to TEKS Vertical Alignment
	• select from and use diagrams and equations such as $y = 5 + 3$ to represent meaningful problem situations • identify prime and composite numbers using concrete objects, pictorial models, and patterns in factor pairs • describe the relationship between sets of data in graphic organizers such as lists, tables, charts, and diagrams • describe the relationship between two sets of related data such as ordered pairs in a table • identify and describe patterns in a table of related number pairs based on a meaningful problem and extend the table • generate a table of paired numbers based on a real-life situation such as insects and legs *Patterns* • use patterns to multiply by 10 and 100 • use patterns and relationships to develop strategies to remember basic multiplication and division facts (such as the patterns in related multiplication and division number sentences (fact families) such as $9 \times 9 = 81$ and $81 \div 9 = 9$) • identify patterns in related multiplication and division sentences (fact families) such as $2 \times 3 = 6$, $3 \times 2 = 6$, $6 \div 2 = 3$, $6 \div 3 = 2$ • identify patterns in multiplication facts using concrete objects, pictorial models, or technology • identify and extend whole-number and geometric patterns to make predictions and solve problems • identify, describe, and extend repeating and additive patterns to make predictions and solve problems • identify patterns in a list of related number pairs based on a real-life situation and extend the list • generate a list of paired numbers based on a real-life situation such as number of tricycles related to number of wheels • use patterns and relationships to develop strategies to remember basic addition and subtraction facts. Determine patterns in related addition and subtraction number sentences (including fact families) such as $8 + 9 = 17$, $9 + 8 = 17$, $17 - 8 = 9$, and $17 - 9 = 8$ • use patterns in place value to compare and order whole numbers through 999 • find patterns in numbers such as in a 100s chart • identify patterns in related addition and subtraction sentences (fact families for sums to 18) such as $2 + 3 = 5$, $3 + 2 = 5$, $5 - 2 = 3$, and $5 - 3 = 2$ • use patterns to develop strategies to solve basic addition and basic subtraction problems • compare and order whole numbers using place value • find patterns in numbers, including odd and even • use patterns to skip count by twos, fives, and tens • identify, describe, and extend concrete and pictorial patterns in order to make predictions and solve problems • count by ones to 100 • use patterns to predict what comes next, including cause-and-effect relationships • identify, extend, and create patterns of sounds, physical movement, and concrete objects **Classification and patterns skills** • recognize and create patterns

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 2 – Properties and Attributes of Functions: The student will demonstrate an understanding of the properties and attributes of functions.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
Algebra (3) Foundations for functions. The student understands how algebra can be used to express generalizations and recognizes and uses the power of symbols to represent situations. The student is expected to (A) use symbols to represent unknowns and variables; Supporting Standard (B) look for patterns and represent generalizations algebraically. Supporting Standard	Uses symbols to represent situations.

Algebra 3	Prerequisite Skills/Links to TEKS Vertical Alignment

Relationships
- estimate and find solutions to application problems involving percents and other proportional relationships such as similarity and rates
- compare and contrast proportional and non-proportional linear relationships
- use words and symbols to describe the relationship between the terms in an arithmetic sequence (with a constant rate of change) and their positions in the sequence
- estimate and find solutions to application problems involving proportional relationships such as similarity, scaling, unit costs, and related measurement units
- estimate and find solutions to application problems involving percent
- use ratios to make predictions in proportional situations
- represent ratios and percents with concrete models, fractions, and decimals
- use ratios to describe proportional situations

Patterns
- use patterns to multiply by 10 and 100
- use patterns and relationships to develop strategies to remember basic multiplication and division facts (such as the patterns in related multiplication and division number sentences (fact families) such as $9 \times 9 = 81$ and $81 \div 9 = 9$)
- identify patterns in related multiplication and division sentences (fact families) such as $2 \times 3 = 6$, $3 \times 2 = 6$, $6 \div 2 = 3$, $6 \div 3 = 2$
- identify patterns in multiplication facts using concrete objects, pictorial models, or technology
- identify and extend whole-number and geometric patterns to make predictions and solve problems
- identify, describe, and extend repeating and additive patterns to make predictions and solve problems
- identify patterns in a list of related number pairs based on a real-life situation and extend the list

Continued

Algebra 3	Prerequisite Skills/Links to TEKS Vertical Alignment
	• generate a list of paired numbers based on a real-life situation such as number of tricycles related to number of wheels • use patterns and relationships to develop strategies to remember basic addition and subtraction facts. Determine patterns in related addition and subtraction number sentences (including fact families) such as $8 + 9 = 17$, $9 + 8 = 17$, $17 - 8 = 9$, and $17 - 9 = 8$ • use patterns in place value to compare and order whole numbers through 999 • find patterns in numbers such as in a 100s chart • identify patterns in related addition and subtraction sentences (fact families for sums to 18) such as $2 + 3 = 5$, $3 + 2 = 5$, $5 - 2 = 3$, and $5 - 3 = 2$ • use patterns to develop strategies to solve basic addition and basic subtraction problems • compare and order whole numbers using place value • find patterns in numbers, including odd and even • use patterns to skip count by twos, fives, and tens • identify, describe, and extend concrete and pictorial patterns in order to make predictions and solve problems • count by ones to 100 • use patterns to predict what comes next, including cause-and-effect relationships • identify, extend, and create patterns of sounds, physical movement, and concrete objects **Classification and patterns skills** • recognize and create patterns

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 2 – Properties and Attributes of Functions: The student will demonstrate an understanding of the properties and attributes of functions.	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	**Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations**
Algebra (4) Foundations for functions. The student understands the importance of the skills required to manipulate symbols in order to solve problems and uses the necessary algebraic skills required to simplify algebraic expressions and solve equations and inequalities in problem situations. The student is expected to (A) find specific function values, simplify polynomial expressions, transform and solve equations, and factor as necessary in problem situations; Readiness Standard (B) use the commutative, associative, and distributive properties to simplify algebraic expressions; Supporting Standard (C) connect equation notation with function notation, such as $y = x + 1$ and $f(x) = x + 1$. Supporting Standard	Uses mathematical skills to simplify expressions and solve problems.

Algebra 4	**Prerequisite Skills/Links to TEKS Vertical Alignment**
	Operations and Reasoning: Addition and Subtraction • use addition and subtraction to solve problems involving fractions and decimals • model addition and subtraction situations involving fractions with objects, pictures, words, and numbers • model situations using addition and/ or subtraction involving fractions with like denominators using concrete objects, pictures, words, and numbers • use addition and subtraction to solve problems involving whole numbers and decimals • add and subtract decimals to the hundredths place using concrete objects and pictorial models • use addition and subtraction to solve problems involving whole numbers • select addition or subtraction and use the operation to solve problems involving whole numbers through 999 • model addition and subtraction using pictures, words, and numbers • select addition or subtraction to solve problems using two-digit numbers, whether or not regrouping is necessary • model addition and subtraction of two-digit numbers with objects, pictures, words, and numbers • recall and apply basic addition and subtraction facts (to 18) • use concrete and pictorial models to apply basic addition and subtraction facts (up to $9 + 9 = 18$ and $18 - 9 = 9$) • model and create addition and subtraction problem situations with concrete objects and write corresponding number sentences • model and create addition and subtraction problems in real situations with concrete objects

Continued

Algebra 4	Prerequisite Skills/Links to TEKS Vertical Alignment

Operations and Reasoning: Multiplication and Division
- use multiplication by a given constant factor (including unit rate) to represent and solve problems involving proportional relationships including conversions between measurement systems
- use appropriate operations to solve problems involving rational numbers in problem situations
- select appropriate operations to solve problems involving rational numbers and justify the selections
- select and use appropriate operations to solve problems and justify the selections
- simplify numerical expressions involving order of operations and exponents
- use division to find unit rates and ratios in proportional relationships such as speed, density, price, recipes, and student-teacher ratio
- use models, such as concrete objects, pictorial models, and number lines, to add, subtract, multiply, and divide integers and connect the actions to algorithms
- use addition, subtraction, multiplication, and division to solve problems involving fractions and decimals
- represent multiplication and division situations involving fractions and decimals with models, including concrete objects, pictures, words, and numbers
- use order of operations to simplify whole number expressions (without exponents) in problem solving situations
- use multiplication and division of whole numbers to solve problems including situations involving equivalent ratios and rates
- identify common factors of a set of whole numbers
- use division to solve problems involving whole numbers (no more than two-digit divisors and three-digit dividends without technology), including interpreting the remainder within a given context
- use multiplication to solve problems involving whole numbers (no more than three digits times two digits without technology)
- use division to solve problems (no more than one-digit divisors and three-digit dividends without technology)
- use multiplication to solve problems (no more than two digits times two digits without technology)
- recall and apply multiplication facts through 12 x 12
- represent multiplication and division situations in picture, word, and number form
- model factors and products using arrays and area models
- use models to solve division problems and use number sentences to record the solutions
- solve and record multiplication problems (up to two digits times one digit)
- learn and apply multiplication facts through 12 by 12 using concrete models and objects
- model, create, and describe division situations in which a set of concrete objects is separated into equivalent sets
- model, create, and describe multiplication situations in which equivalent sets of concrete objects are joined

Adding to/taking away skills
- use informal strategies to share or divide up to 10 items equally
- use concrete models or make a verbal word problem for subtracting 1–5 objects from a set
- use concrete models or make a verbal word problem for adding up to 5 objects

Continued

Algebra 4	Prerequisite Skills/Links to TEKS Vertical Alignment
	Operations and Reasoning: Estimation and Reasonableness - evaluate a solution for reasonableness - determine the reasonableness of a solution to a problem - estimate and round to approximate reasonable results and to solve problems where exact answers are not required - use strategies, including rounding and compatible numbers to estimate solutions to addition, subtraction, multiplication, and division problems - use strategies including rounding and compatible numbers to estimate solutions to multiplication and division problems - round whole numbers to the nearest ten, hundred, or thousand to approximate reasonable results in problem situations - use strategies including rounding and compatible numbers to estimate solutions to addition and subtraction problems - round whole numbers to the nearest ten or hundred to approximate reasonable results in problem situations

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 3 – Linear Functions: The student will demonstrate an understanding of linear functions.	

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
Algebra (5) Linear functions. The student understands that linear functions can be represented in different ways and translates among their various representations. The student is expected to (A) determine whether or not given situations can be represented by linear functions; Supporting Standard (B) determine the domain and range for linear functions in given situations; Supporting Standard (C) use, translate, and make connections among algebraic, tabular, graphical, or verbal descriptions of linear functions. Readiness Standard	Understands different representations of linear functions.

Algebra 5	Prerequisite Skills/Links to TEKS Vertical Alignment

Graphical Representations
- find and evaluate an algebraic expression to determine any term in an arithmetic sequence (with a constant rate of change)
- predict, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations
- generate a different representation of data given another representation of data (such as a table, graph, equation, or verbal description)
- formulate problem situations when given a simple equation and formulate an equation when given a problem situation
- use concrete and pictorial models to solve equations and use symbols to record the actions
- graph data to demonstrate relationships in familiar concepts such as conversions, perimeter, area, circumference, volume, and scaling
- generate formulas involving unit conversions within the same system (customary and metric), perimeter, area, circumference, volume, and scaling
- formulate equations from problem situations described by linear relationships
- use tables of data to generate formulas representing relationships involving perimeter, area, volume of a rectangular prism, etc.
- use tables and symbols to represent and describe proportional and other relationships such as those involving conversions, arithmetic sequences (with a constant rate of change), perimeter and area
- select from and use diagrams and equations such as $y = 5 + 3$ to represent meaningful problem situations
- identify prime and composite numbers using concrete objects, pictorial models, and patterns in factor pairs
- describe the relationship between sets of data in graphic organizers such as lists, tables, charts, and diagrams

Continued

Algebra 5	Prerequisite Skills/Links to TEKS Vertical Alignment

- describe the relationship between two sets of related data such as ordered pairs in a table
- identify and describe patterns in a table of related number pairs based on a meaningful problem and extend the table
- generate a table of paired numbers based on a real-life situation such as insects and legs

Patterns

- use patterns to multiply by 10 and 100
- use patterns and relationships to develop strategies to remember basic multiplication and division facts (such as the patterns in related multiplication and division number sentences (fact families) such as $9 \times 9 = 81$ and $81 \div 9 = 9$)
- identify patterns in related multiplication and division sentences (fact families) such as $2 \times 3 = 6$, $3 \times 2 = 6$, $6 \div 2 = 3$, $6 \div 3 = 2$
- identify patterns in multiplication facts using concrete objects, pictorial models, or technology
- identify and extend whole-number and geometric patterns to make predictions and solve problems
- identify, describe, and extend repeating and additive patterns to make predictions and solve problems
- identify patterns in a list of related number pairs based on a real-life situation and extend the list
- generate a list of paired numbers based on a real-life situation such as number of tricycles related to number of wheels
- use patterns and relationships to develop strategies to remember basic addition and subtraction facts. Determine patterns in related addition and subtraction number sentences (including fact families) such as $8 + 9 = 17$, $9 + 8 = 17$, $17 - 8 = 9$, and $17 - 9 = 8$
- use patterns in place value to compare and order whole numbers through 999
- find patterns in numbers such as in a 100s chart
- identify patterns in related addition and subtraction sentences (fact families for sums to 18) such as $2 + 3 = 5$, $3 + 2 = 5$, $5 - 2 = 3$, and $5 - 3 = 2$
- use patterns to develop strategies to solve basic addition and basic subtraction problems
- compare and order whole numbers using place value
- find patterns in numbers, including odd and even
- use patterns to skip count by twos, fives, and tens
- identify, describe, and extend concrete and pictorial patterns in order to make predictions and solve problems
- count by ones to 100
- use patterns to predict what comes next, including cause-and-effect relationships
- identify, extend, and create patterns of sounds, physical movement, and concrete objects

Classification and patterns skills

- recognize and create patterns

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 3 – Linear Functions: The student will demonstrate an understanding of linear functions.	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	**Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations**
Algebra (6) Linear functions. The student understands the meaning of the slope and intercepts of the graphs of linear functions and zeros of linear functions and interprets and describes the effects of changes in parameters of linear functions in real-world and mathematical situations. The student is expected to (A) develop the concept of slope as rate of change and determine slopes from graphs, tables, and algebraic representations; Supporting Standard (B) interpret the meaning of slope and intercepts in situations using data, symbolic representations, or graphs; Readiness Standard (C) investigate, describe, and predict the effects of changes in m and b on the graph of $y = mx + b$; Readiness Standard (D) graph and write equations of lines given characteristics such as two points, a point and a slope, or a slope and y-intercept; Supporting Standard (E) determine the intercepts of the graphs of linear functions and zeros of linear functions from graphs, tables, and algebraic representations; Supporting Standard (F) interpret and predict the effects of changing slope and y-intercept in applied situations; Readiness Standard (G) relate direct variation to linear functions and solve problems involving proportional change. Supporting Standard	Recognizes slope and intercepts and how they are affected by change.

Algebra 6	**Prerequisite Skills/Links to TEKS Vertical Alignment**
	Relationships • estimate and find solutions to application problems involving percents and other proportional relationships such as similarity and rates • compare and contrast proportional and non-proportional linear relationships • use words and symbols to describe the relationship between the terms in an arithmetic sequence (with a constant rate of change) and their positions in the sequence

Algebra 6	Prerequisite Skills/Links to TEKS Vertical Alignment
	• estimate and find solutions to application problems involving proportional relationships such as similarity, scaling, unit costs, and related measurement units
	• estimate and find solutions to application problems involving percent
	• use ratios to make predictions in proportional situations
	• represent ratios and percents with concrete models, fractions, and decimals
	• use ratios to describe proportional situations
	Patterns
	• use patterns to multiply by 10 and 100
	• use patterns and relationships to develop strategies to remember basic multiplication and division facts (such as the patterns in related multiplication and division number sentences (fact families) such as $9 \times 9 = 81$ and $81 \div 9 = 9$)
	• identify patterns in related multiplication and division sentences (fact families) such as $2 \times 3 = 6$, $3 \times 2 = 6$, $6 \div 2 = 3$, $6 \div 3 = 2$
	• identify patterns in multiplication facts using concrete objects, pictorial models, or technology
	• identify and extend whole-number and geometric patterns to make predictions and solve problems
	• identify, describe, and extend repeating and additive patterns to make predictions and solve problems
	• identify patterns in a list of related number pairs based on a real-life situation and extend the list
	• generate a list of paired numbers based on a real-life situation such as number of tricycles related to number of wheels
	• use patterns and relationships to develop strategies to remember basic addition and subtraction facts. Determine patterns in related addition and subtraction number sentences (including fact families) such as $8 + 9 = 17$, $9 + 8 = 17$, $17 - 8 = 9$, and $17 - 9 = 8$
	• use patterns in place value to compare and order whole numbers through 999
	• find patterns in numbers such as in a 100s chart
	• identify patterns in related addition and subtraction sentences (fact families for sums to 18) such as $2 + 3 = 5$, $3 + 2 = 5$, $5 - 2 = 3$, and $5 - 3 = 2$
	• use patterns to develop strategies to solve basic addition and basic subtraction problems
	• compare and order whole numbers using place value
	• find patterns in numbers, including odd and even
	• use patterns to skip count by twos, fives, and tens
	• identify, describe, and extend concrete and pictorial patterns in order to make predictions and solve problems
	• count by ones to 100
	• use patterns to predict what comes next, including cause-and-effect relationships
	• identify, extend, and create patterns of sounds, physical movement, and concrete objects
	Classification and patterns skills
	• recognize and create patterns

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 4 – Linear Equations and Inequalities: The student will formulate and use linear equations and inequalities.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
Algebra (7) Linear functions. The student formulates equations and inequalities based on linear functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation. The student is expected to (A) analyze situations involving linear functions and formulate linear equations or inequalities to solve problems; Supporting Standard (B) investigate methods for solving linear equations and inequalities using [concrete] models, graphs, and the properties of equality, select a method, and solve the equations and inequalities; Readiness Standard (C) interpret and determine the reasonableness of solutions to linear equations and inequalities. Supporting Standard	Formulates and solves equations and inequalities of linear functions.

Algebra 7	Prerequisite Skills/Links to TEKS Vertical Alignment

Graphical Representations
- find and evaluate an algebraic expression to determine any term in an arithmetic sequence (with a constant rate of change)
- predict, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations
- generate a different representation of data given another representation of data (such as a table, graph, equation, or verbal description)
- formulate problem situations when given a simple equation and formulate an equation when given a problem situation
- use concrete and pictorial models to solve equations and use symbols to record the actions
- graph data to demonstrate relationships in familiar concepts such as conversions, perimeter, area, circumference, volume, and scaling
- generate formulas involving unit conversions within the same system (customary and metric), perimeter, area, circumference, volume, and scaling
- formulate equations from problem situations described by linear relationships
- use tables of data to generate formulas representing relationships involving perimeter, area, volume of a rectangular prism, etc.
- use tables and symbols to represent and describe proportional and other relationships such as those involving conversions, arithmetic sequences (with a constant rate of change), perimeter and area

Continued

Algebra 7	Prerequisite Skills/Links to TEKS Vertical Alignment

- select from and use diagrams and equations such as y = 5 + 3 to represent meaningful problem situations
- identify prime and composite numbers using concrete objects, pictorial models, and patterns in factor pairs
- describe the relationship between sets of data in graphic organizers such as lists, tables, charts, and diagrams
- describe the relationship between two sets of related data such as ordered pairs in a table
- identify and describe patterns in a table of related number pairs based on a meaningful problem and extend the table
- generate a table of paired numbers based on a real-life situation such as insects and legs

Patterns
- use patterns to multiply by 10 and 100
- use patterns and relationships to develop strategies to remember basic multiplication and division facts (such as the patterns in related multiplication and division number sentences (fact families) such as $9 \times 9 = 81$ and $81 \div 9 = 9$)
- identify patterns in related multiplication and division sentences (fact families) such as $2 \times 3 = 6$, $3 \times 2 = 6$, $6 \div 2 = 3$, $6 \div 3 = 2$
- identify patterns in multiplication facts using concrete objects, pictorial models, or technology
- identify and extend whole-number and geometric patterns to make predictions and solve problems
- identify, describe, and extend repeating and additive patterns to make predictions and solve problems
- identify patterns in a list of related number pairs based on a real-life situation and extend the list
- generate a list of paired numbers based on a real-life situation such as number of tricycles related to number of wheels
- use patterns and relationships to develop strategies to remember basic addition and subtraction facts. Determine patterns in related addition and subtraction number sentences (including fact families) such as $8 + 9 = 17$, $9 + 8 = 17$, $17 - 8 = 9$, and $17 - 9 = 8$
- use patterns in place value to compare and order whole numbers through 999
- find patterns in numbers such as in a 100s chart
- identify patterns in related addition and subtraction sentences (fact families for sums to 18) such as $2 + 3 = 5$, $3 + 2 = 5$, $5 - 2 = 3$, and $5 - 3 = 2$
- use patterns to develop strategies to solve basic addition and basic subtraction problems
- compare and order whole numbers using place value
- find patterns in numbers, including odd and even
- use patterns to skip count by twos, fives, and tens
- identify, describe, and extend concrete and pictorial patterns in order to make predictions and solve problems
- count by ones to 100
- use patterns to predict what comes next, including cause-and-effect relationships
- identify, extend, and create patterns of sounds, physical movement, and concrete objects

Classification and patterns skills
- recognize and create patterns

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 4 – Linear Equations and Inequalities: The student will formulate and use linear equations and inequalities.	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	**Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations**
Algebra (8) Linear functions. The student formulates systems of linear equations from problem situations, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation. The student is expected to (A) analyze situations and formulate systems of linear equations in two unknowns to solve problems; Supporting Standard (B) solve systems of linear equations using [concrete] models, graphs, tables, and algebraic methods; Readiness Standard (C) interpret and determine the reasonableness of solutions to systems of linear equations. Supporting Standard	Formulates and solves systems of linear equations.

Algebra 8	Prerequisite Skills/Links to TEKS Vertical Alignment
	Graphical Representations • find and evaluate an algebraic expression to determine any term in an arithmetic sequence (with a constant rate of change) • predict, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations • generate a different representation of data given another representation of data (such as a table, graph, equation, or verbal description) • formulate problem situations when given a simple equation and formulate an equation when given a problem situation • use concrete and pictorial models to solve equations and use symbols to record the actions • graph data to demonstrate relationships in familiar concepts such as conversions, perimeter, area, circumference, volume, and scaling • generate formulas involving unit conversions within the same system (customary and metric), perimeter, area, circumference, volume, and scaling • formulate equations from problem situations described by linear relationships • use tables of data to generate formulas representing relationships involving perimeter, area, volume of a rectangular prism, etc. • use tables and symbols to represent and describe proportional and other relationships such as those involving conversions, arithmetic sequences (with a constant rate of change), perimeter and area • select from and use diagrams and equations such as $y = 5 + 3$ to represent meaningful problem situations • identify prime and composite numbers using concrete objects, pictorial models, and patterns in factor pairs • describe the relationship between sets of data in graphic organizers such as lists, tables, charts, and diagrams

Algebra 8	Prerequisite Skills/Links to TEKS Vertical Alignment
	- describe the relationship between two sets of related data such as ordered pairs in a table - identify and describe patterns in a table of related number pairs based on a meaningful problem and extend the table - generate a table of paired numbers based on a real-life situation such as insects and legs *Patterns* - use patterns to multiply by 10 and 100 - use patterns and relationships to develop strategies to remember basic multiplication and division facts (such as the patterns in related multiplication and division number sentences (fact families) such as $9 \times 9 = 81$ and $81 \div 9 = 9$) - identify patterns in related multiplication and division sentences (fact families) such as $2 \times 3 = 6, 3 \times 2 = 6, 6 \div 2 = 3, 6 \div 3 = 2$ - identify patterns in multiplication facts using concrete objects, pictorial models, or technology - identify and extend whole-number and geometric patterns to make predictions and solve problems - identify, describe, and extend repeating and additive patterns to make predictions and solve problems - identify patterns in a list of related number pairs based on a real-life situation and extend the list - generate a list of paired numbers based on a real-life situation such as number of tricycles related to number of wheels - use patterns and relationships to develop strategies to remember basic addition and subtraction facts. Determine patterns in related addition and subtraction number sentences (including fact families) such as $8 + 9 = 17, 9 + 8 = 17, 17 - 8 = 9$, and $17 - 9 = 8$ - use patterns in place value to compare and order whole numbers through 999 - find patterns in numbers such as in a 100s chart - identify patterns in related addition and subtraction sentences (fact families for sums to 18) such as $2 + 3 = 5, 3 + 2 = 5, 5 - 2 = 3$, and $5 - 3 = 2$ - use patterns to develop strategies to solve basic addition and basic subtraction problems - compare and order whole numbers using place value - find patterns in numbers, including odd and even - use patterns to skip count by twos, fives, and tens - identify, describe, and extend concrete and pictorial patterns in order to make predictions and solve problems - count by ones to 100 - use patterns to predict what comes next, including cause-and-effect relationships - identify, extend, and create patterns of sounds, physical movement, and concrete objects **Classification and patterns skills** - recognize and create patterns

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 5 – Quadratic and Other Nonlinear Functions: The student will demonstrate an understanding of quadratic and other nonlinear functions.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
Algebra (9) Quadratic and other nonlinear functions. The student understands that the graphs of quadratic functions are affected by the parameters of the function and can interpret and describe the effects of changes in the parameters of quadratic functions. The student is expected to (A) determine the domain and range for quadratic functions in given situations; Supporting Standard (B) investigate, describe, and predict the effects of changes in a on the graph of $y = ax^2 + c$; Supporting Standard (C) investigate, describe, and predict the effects of changes in c on the graph of $y = ax^2 + c$; Supporting Standard (D) analyze graphs of quadratic functions and draw conclusions. Readiness Standard	Uses the graphs of quadratic functions to predict changes.

Algebra 9	Prerequisite Skills/Links to TEKS Vertical Alignment

Relationships
- estimate and find solutions to application problems involving percents and other proportional relationships such as similarity and rates
- compare and contrast proportional and non-proportional linear relationships
- use words and symbols to describe the relationship between the terms in an arithmetic sequence (with a constant rate of change) and their positions in the sequence
- estimate and find solutions to application problems involving proportional relationships such as similarity, scaling, unit costs, and related measurement units
- estimate and find solutions to application problems involving percent
- use ratios to make predictions in proportional situations
- represent ratios and percents with concrete models, fractions, and decimals
- use ratios to describe proportional situations

Patterns
- use patterns to multiply by 10 and 100
- use patterns and relationships to develop strategies to remember basic multiplication and division facts (such as the patterns in related multiplication and division number sentences (fact families) such as $9 \times 9 = 81$ and $81 \div 9 = 9$)

Continued

Algebra 9	Prerequisite Skills/Links to TEKS Vertical Alignment
	- identify patterns in related multiplication and division sentences (fact families) such as $2 \times 3 = 6$, $3 \times 2 = 6$, $6 \div 2 = 3$, $6 \div 3 = 2$ - identify patterns in multiplication facts using concrete objects, pictorial models, or technology - identify and extend whole-number and geometric patterns to make predictions and solve problems - identify, describe, and extend repeating and additive patterns to make predictions and solve problems - identify patterns in a list of related number pairs based on a real-life situation and extend the list - generate a list of paired numbers based on a real-life situation such as number of tricycles related to number of wheels - use patterns and relationships to develop strategies to remember basic addition and subtraction facts. Determine patterns in related addition and subtraction number sentences (including fact families) such as $8 + 9 = 17$, $9 + 8 = 17$, $17 - 8 = 9$, and $17 - 9 = 8$ - use patterns in place value to compare and order whole numbers through 999 - find patterns in numbers such as in a 100s chart - identify patterns in related addition and subtraction sentences (fact families for sums to 18) such as $2 + 3 = 5$, $3 + 2 = 5$, $5 - 2 = 3$, and $5 - 3 = 2$ - use patterns to develop strategies to solve basic addition and basic subtraction problems - compare and order whole numbers using place value - find patterns in numbers, including odd and even - use patterns to skip count by twos, fives, and tens - identify, describe, and extend concrete and pictorial patterns in order to make predictions and solve problems - count by ones to 100 - use patterns to predict what comes next, including cause-and-effect relationships - identify, extend, and create patterns of sounds, physical movement, and concrete objects **Classification and patterns skills** - recognize and create patterns

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 5 – Quadratic and Other Nonlinear Functions: The student will demonstrate an understanding of quadratic and other nonlinear functions.	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	**Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations**
Algebra (10) Quadratic and other nonlinear functions. The student understands there is more than one way to solve a quadratic equation and solves them using appropriate methods. The student is expected to (A) solve quadratic equations using [concrete] models, tables, graphs, and algebraic methods; Readiness Standard (B) make connections among the solutions (roots) of quadratic equations, the zeros of their related functions, and the horizontal intercepts (*x*-intercepts) of the graph of the function. Supporting Standard	Solves quadratic equations in a variety of ways.

Algebra 10	Prerequisite Skills/Links to TEKS Vertical Alignment

Graphical Representations
- find and evaluate an algebraic expression to determine any term in an arithmetic sequence (with a constant rate of change)
- predict, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations
- generate a different representation of data given another representation of data (such as a table, graph, equation, or verbal description)
- formulate problem situations when given a simple equation and formulate an equation when given a problem situation
- use concrete and pictorial models to solve equations and use symbols to record the actions
- graph data to demonstrate relationships in familiar concepts such as conversions, perimeter, area, circumference, volume, and scaling
- generate formulas involving unit conversions within the same system (customary and metric), perimeter, area, circumference, volume, and scaling
- formulate equations from problem situations described by linear relationships
- use tables of data to generate formulas representing relationships involving perimeter, area, volume of a rectangular prism, etc.
- use tables and symbols to represent and describe proportional and other relationships such as those involving conversions, arithmetic sequences (with a constant rate of change), perimeter and area
- select from and use diagrams and equations such as $y = 5 + 3$ to represent meaningful problem situations
- identify prime and composite numbers using concrete objects, pictorial models, and patterns in factor pairs
- describe the relationship between sets of data in graphic organizers such as lists, tables, charts, and diagrams

Algebra 10	Prerequisite Skills/Links to TEKS Vertical Alignment

- describe the relationship between two sets of related data such as ordered pairs in a table
- identify and describe patterns in a table of related number pairs based on a meaningful problem and extend the table
- generate a table of paired numbers based on a real-life situation such as insects and legs

Patterns

- use patterns to multiply by 10 and 100
- use patterns and relationships to develop strategies to remember basic multiplication and division facts (such as the patterns in related multiplication and division number sentences (fact families) such as $9 \times 9 = 81$ and $81 \div 9 = 9$)
- identify patterns in related multiplication and division sentences (fact families) such as $2 \times 3 = 6, 3 \times 2 = 6, 6 \div 2 = 3, 6 \div 3 = 2$
- identify patterns in multiplication facts using concrete objects, pictorial models, or technology
- identify and extend whole-number and geometric patterns to make predictions and solve problems
- identify, describe, and extend repeating and additive patterns to make predictions and solve problems
- identify patterns in a list of related number pairs based on a real-life situation and extend the list
- generate a list of paired numbers based on a real-life situation such as number of tricycles related to number of wheels
- use patterns and relationships to develop strategies to remember basic addition and subtraction facts. Determine patterns in related addition and subtraction number sentences (including fact families) such as $8 + 9 = 17, 9 + 8 = 17, 17 - 8 = 9$, and $17 - 9 = 8$
- use patterns in place value to compare and order whole numbers through 999
- find patterns in numbers such as in a 100s chart
- identify patterns in related addition and subtraction sentences (fact families for sums to 18) such as $2 + 3 = 5, 3 + 2 = 5, 5 - 2 = 3$, and $5 - 3 = 2$
- use patterns to develop strategies to solve basic addition and basic subtraction problems
- compare and order whole numbers using place value
- find patterns in numbers, including odd and even
- use patterns to skip count by twos, fives, and tens
- identify, describe, and extend concrete and pictorial patterns in order to make predictions and solve problems
- count by ones to 100
- use patterns to predict what comes next, including cause-and-effect relationships
- identify, extend, and create patterns of sounds, physical movement, and concrete objects

Classification and patterns skills

- recognize and create patterns

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 5 – Quadratic and Other Nonlinear Functions: The student will demonstrate an understanding of quadratic and other nonlinear functions.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
Algebra (11) Quadratic and other nonlinear functions. The student understands there are situations modeled by functions that are neither linear nor quadratic and models the situations. The student is expected to (A) use patterns to generate the laws of exponents and apply them in problem-solving situations; Supporting Standard (B) analyze data and represent situations involving inverse variation using [concrete] models, tables, graphs, or algebraic methods; Supporting Standard (C) analyze data and represent situations involving exponential growth and decay using [concrete] models, tables, graphs, or algebraic methods. Supporting Standard	Uses models for functions that are neither linear nor quadratic.

Algebra 11	Prerequisite Skills/Links to TEKS Vertical Alignment

Graphical Representations
- find and evaluate an algebraic expression to determine any term in an arithmetic sequence (with a constant rate of change)
- predict, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations
- generate a different representation of data given another representation of data (such as a table, graph, equation, or verbal description)
- formulate problem situations when given a simple equation and formulate an equation when given a problem situation
- use concrete and pictorial models to solve equations and use symbols to record the actions
- graph data to demonstrate relationships in familiar concepts such as conversions, perimeter, area, circumference, volume, and scaling
- generate formulas involving unit conversions within the same system (customary and metric), perimeter, area, circumference, volume, and scaling
- formulate equations from problem situations described by linear relationships
- use tables of data to generate formulas representing relationships involving perimeter, area, volume of a rectangular prism, etc.
- use tables and symbols to represent and describe proportional and other relationships such as those involving conversions, arithmetic sequences (with a constant rate of change), perimeter and area
- select from and use diagrams and equations such as $y = 5 + 3$ to represent meaningful problem situations

Continued

Algebra 11	Prerequisite Skills/Links to TEKS Vertical Alignment
	• identify prime and composite numbers using concrete objects, pictorial models, and patterns in factor pairs • describe the relationship between sets of data in graphic organizers such as lists, tables, charts, and diagrams • describe the relationship between two sets of related data such as ordered pairs in a table • identify and describe patterns in a table of related number pairs based on a meaningful problem and extend the table • generate a table of paired numbers based on a real-life situation such as insects and legs *Patterns* • use patterns to multiply by 10 and 100 • use patterns and relationships to develop strategies to remember basic multiplication and division facts (such as the patterns in related multiplication and division number sentences (fact families) such as $9 \times 9 = 81$ and $81 \div 9 = 9$) • identify patterns in related multiplication and division sentences (fact families) such as $2 \times 3 = 6$, $3 \times 2 = 6$, $6 \div 2 = 3$, $6 \div 3 = 2$ • identify patterns in multiplication facts using concrete objects, pictorial models, or technology • identify and extend whole-number and geometric patterns to make predictions and solve problems • identify, describe, and extend repeating and additive patterns to make predictions and solve problems • identify patterns in a list of related number pairs based on a real-life situation and extend the list • generate a list of paired numbers based on a real-life situation such as number of tricycles related to number of wheels • use patterns and relationships to develop strategies to remember basic addition and subtraction facts. Determine patterns in related addition and subtraction number sentences (including fact families) such as $8 + 9 = 17$, $9 + 8 = 17$, $17 - 8 = 9$, and $17 - 9 = 8$ • use patterns in place value to compare and order whole numbers through 999 • find patterns in numbers such as in a 100s chart • identify patterns in related addition and subtraction sentences (fact families for sums to 18) such as $2 + 3 = 5$, $3 + 2 = 5$, $5 - 2 = 3$, and $5 - 3 = 2$ • use patterns to develop strategies to solve basic addition and basic subtraction problems • compare and order whole numbers using place value • find patterns in numbers, including odd and even • use patterns to skip count by twos, fives, and tens • identify, describe, and extend concrete and pictorial patterns in order to make predictions and solve problems • count by ones to 100 • use patterns to predict what comes next, including cause-and-effect relationships • identify, extend, and create patterns of sounds, physical movement, and concrete objects **Classification and patterns skills** • recognize and create patterns

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.